

Turning to **Figure 1**, a block diagram of a known semidigital DLL-based CDR using a phase rotator is shown. This prior art CDR includes DLL or PLL circuit 100, phase rotator 102, phase detector/sampler (PD/S) 104, and digital finite state machine (FSM) 106. DLL or PLL circuit 100 receives a clock reference signal, CLK_{ref}. The output of DLL or PLL circuit 100 is input into phase rotator 102. In turn, phase rotator 102 generates an output clock signal, CLK_{out} at a frequency commensurate with that of CLK_{ref} and with a phase shift controlled by the action of the phase rotator. Phase detector/sampler 104 receives a digital data stream, DAT_{in}, and a clock signal, CLK_{out}, used to generate information about the phase relationship between CLK_{out} and DAT_{in} and to sample DAT_{in}. Phase detector/sampler 104 also generates an output data stream, DAT_{out}. Phase detector/sampler 104 generates up (UP) or down (DN) signals in a digital data stream, which is received by digital finite state machine (FSM) 106. In turn, digital finite state machine 106 processes this information to produce appropriate control signals which are sent to phase rotator 102.

Therefore, Applicants' Admitted Prior Art does not teach the claimed feature of "an analog based finite state machine having an up input connected to the up output, a down input connected to the down output, and phase output connected to the phase input of the controllable delay element, wherein the analog based finite state machine generates the phase data in response to up signals and down signals received from the phase detector." Thus, Applicants' Admitted Prior Art does not anticipate claim 1.

Therefore, for the reasons stated above, Applicants submit that independent claim 1 is patentable over Applicants' Admitted Prior Art because Applicants' Admitted Prior Art does not anticipate the present invention.

Claims 2 and 15 are depend from claim 1. As Applicants have already shown claim 1 is patentable over Applicants' Admitted Prior Art, Applicants submit that dependent claims 2 and 15 are also patentable over the Applicants' Admitted Prior Art at least by virtue of depending from an allowable claim.

Therefore, the rejection of claims 1, 2, and 15 under 35 U.S.C. § 102 has been overcome.

II. Objection to Claims, Allowable Subject Matter

The examiner states that claims 3-14 and 16 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form

including all of the limitations of the base claim and any intervening claims. However, all the claims are allowable over Applicants' Admitted Prior Art. Thus, all the claims should be in condition for allowance.

III. Objection to Claims, Minor Informalities

The examiner states that claims 4 and 16 were objected to because of the following informalities:

Claim 4, line 1, change "1" to - 3 -

Claim 16, line 1, change "1" to - 16 -

In response, Applicants have amended claim 4 accordingly. However, it did not make sense to change claim 16, line 1, from "1" to "16," as the claim would then reference itself. Instead, Applicants have amended claim 16 to depend from claim 4. Accordingly, the objections to claims 4 and 16 have been overcome.

IV. Conclusion

It is respectfully urged that the subject application is patentable over the cited reference and is now in condition for allowance.

The examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,

Fay

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